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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,445	04/01/2004	Manuel Schmidt	4674	1606

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EXAMINER	
SOHN, SEUNG C	

ART UNIT	PAPER NUMBER
2878	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/817,445	SCHMIDT ET AL.	
	Examiner	Art Unit	
	SEUNG C. SOHN	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-27* is/are rejected.

7)☒ Claim(s) *28 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 August 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20070821*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 12-15 and 22- 25 are rejected under 35 U SC 102(b) as being anticipated by Stauffer (U.S. Patent # 4,752,799).

Regarding claim 12, Stauffer shows in Fig. 9 a sensor arrangement comprising:

a carrier (420);

a photodiode (480) arranged on said carrier;

a first light emitting diode (426) arranged on said carrier (420) and adapted to emit a pulsed measuring light beam;

a second light emitting diode (444) arranged on said carrier (420) and adapted emit a reference light beam that is pulsed offset in time relative to the measuring light beam; and

a light permeable housing (402) arranged to enclose said photodiode (480), said first light emitting diode (426) and said second light emitting diode (444);

wherein said second light emitting diode (444) is arranged on said carrier (420) and said housing (402) such that the reference light beam emitted by said second light emitting diode will be reflected internally by a surface (410, i.e., lens) of said housing to be incident onto an upper surface of said photodiode (480) (Col. 10, lines 49-66 and Col. 11, lines 3-22).

Regarding claim 13, Stauffer discloses (see Figs. 1 & 9) that the photodiode (34, 480) is arranged on a first plane of the carrier (420) and the second light emitting diode (12,444) is arranged on a second plane (a distance L left of the first light emitting diode) of the carrier (420) (column 2, lines 51-59; column 10, line 66 - column 11, line 2).

Regarding claim 14, Stauffer discloses that the two planes (separated by a distance L) are offset with respect to one another at least by the height of the photodiode (480) or by the height of the second light emitting diode (444) (figure 9; column 3, lines 28-37).

Regarding claim 15, Stauffer discloses that the second light emitting diode (444) is arranged on a higher plane (closer to the surface through which light is transmitted) than the photodiode (480) (Fig. 9).

Regarding claim 22, Stauffer discloses that said housing (402) has a chamfered wall (404) in a region of said second light emitting diode (444) (Fig. 9; Col. 10, lines 49-61).

Regarding claim 23, Stauffer discloses that said chamfered wall (404) is a facet.

Regarding claim 24, Stauffer shows in Fig. 9 that said chamfered wall (402) extends at a declination angle selected such that the reference light beam emitted from said second light emitting diode (444) will be reflected from said chamfered wall toward said photodiode (480).

Regarding claim 25, Stauffer shows in Fig. 11 a lens (617) arranged in front of said first light emitting diode (610) and adapted to focus the measuring light beam (Col. 14, lines 1- 9, 59-64).

3. Claims 12, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Melendez et al. (US Patent No. 6,111,248).

Regarding claim 12, Melendez et al. shows in Fig. 2 a sensor arrangement comprising:

a carrier (81, i.e., platform);

a photodiode (83) arranged on said carrier (81);

a first light emitting diode (91) arranged on said carrier (81) and adapted to emit a pulsed measuring light beam;

a second light emitting diode (93) arranged on said carrier (81) and adapted emit a reference light beam that is pulsed offset in time relative to the measuring light beam; and

a light permeable housing (77) arranged to enclose said photodiode (83), said first light emitting diode (91) and said second light emitting diode (93);

wherein said second light emitting diode (93) is arranged on said carrier (81) and said housing (77) such that the reference light beam emitted by said second light emitting diode (93) will be reflected internally by a surface (101) of said housing to be incident onto an upper surface of said photodiode (83) (Col. 5, lines 23-61).

Regarding claim 26, Melendez et al. shows in Fig. 2 that said housing (77) is embodied so that the reference light beam (97) will be reflected internally by a total reflection from said surface (101) of said housing (77).

Regarding claim 27, Melendez et al. shows in Fig. 2 a detection unit (105 & 107) connected to receive signals from said photodiode (83) and adapted to calculate a portion of ambient light from a difference between a signal generated in said photodiode (93) based on receiving the reference light beam that has been reflected and a signal generated in said photodiode (91) based on receiving the measuring light beam that has been reflected (Col. 5, line 62 – Col. 6, line 2).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer (U.S. Patent # 4,752,799) in view of Deese (U.S. Patent # 5,806,965).

Regarding claims 16-18, Stauffer discloses the device of claim 12, but does not disclose that the carrier is a circuit board. Deese teaches a light emitting diode arrangement wherein a circuit board is provided as a carrier. The circuit board is formed in the manner of a sandwich board of at least two layers, and the layers of the carrier board are laminated to one another (Col. 1, lines 55-67). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Stauffer with a laminated, sandwich circuit board carrier, as taught by Deese, in order to form a rigid carrier With integrated wiring for the connected elements.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer (U.S. Patent # 4,752,799) in view of Reime (Pub # US 200310020004 A1).

Regarding claim 19, Stauffer discloses the device of claim 12, but does not disclose that said carrier consists of a material impermeable to light. Reime teaches a sensor arrangement wherein the carrier consists of a material impermeable to light, and extends into a barrier (150) between the first light emitting diode (140) and the photodiode (2) (figure 10; paragraph 84). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Stauffer with a light impermeable carrier, as taught by Reime, in order to prevent the light emitting diodes from transmitting light horizontally onto the photodiode.

7. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer (U.S. Patent # 4,752,799) in view of Kitani (U.S. Patent # 6,784,409).

Regarding claims 20-21, Stauffer discloses the device of claim 12, but does not disclose that the housing is formed by an encapsulant material that is permeable to light. Kitani shows in Fig. 1 a sensor arrangement wherein the housing (17) is formed by an encapsulant material (epoxy resin) permeable to light (Col. 4, lines 60- 64 and Col. 5, lines 10-13). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Stauffer with a light permeable housing, as taught by Kitani, in order to improve moisture resistance of the electronic part (Col. 4, line 64).

Allowable Subject Matter

8. **Claims 28-29 are objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Claims 28 and 29 are not disclosed or made obvious by the prior art of record, specifically in combination with the limitation of "said housing, said photodiode, said first light emitting diode and said second light emitting diode are arranged and embodied so that none of the reference light beam emitted by said second light emitting diode will be incident on any lateral side surface of said photodiode".

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEUNG C. SOHN whose telephone number is 571-272-4123. The examiner can normally be reached on M-TH, 8 AM -7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GEORGIA Y. EPPS can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SCS

THANH X. LUU
PRIMARY EXAMINER

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